THE ANNALS

AND

MAGAZINE OF NATURAL HISTORY,

INCLUDING

ZOOLOGY, BOTANY, AND GEOLOGY.

(BEING A CONTINUATION OF THE 'ANNALS' COMBINED WITH LOUDON AND CHARLESWORTH'S 'MAGAZINE OF NATURAL HISTORY.')

CONDUCTED BY

PRIDEAUX JOHN SELBY, Esq., F.L.S.,
CHARLES C. BABINGTON, Esq., M.A., F.R.S., F.L.S., F.G.S.,
JOHN EDWARD GRAY, Ph.D., F.R.S., F.L.S., V.P.Z.S. &c.,
ARTHUR HENFREY, F.R.S., F.L.S., Prof. Bot. King's Coll. Lond.,

AND

WILLIAM FRANCIS, Ph.D., F.L.S.

VOL. IV.—THIRD SERIES.

LONDON:

PRINTED AND PUBLISHED BY TAYLOR AND FRANCIS.

SOLD BY LONGMAN, GREEN, LONGMANS, AND ROBERTS; SIMPKIN, MARSHALL, AND CO.; PIPER AND CO.; BAILLIÈRE, REGENT STREET, AND PARIS: LIZARS, AND MACLACHLAN AND STEWART, EDINBURGH: HODGES AND SMITH, DUBLIN: AND ASHER, BERLIN.

1859.

THE ANNALS

AND

MAGAZINE OF NATURAL HISTORY.

[THIRD SERIES.]

No. 22. OCTOBER 1859.

XXV.—*On the supposed Existence of Cellulose in Starch-grains.* By H. von Mohl *.

On no vegetable structure has so great a number of microchemical researches been instituted as upon starch-grains; and of none have the structure and chemical composition, in the course of time, been so contradictorily explained. The view of Raspail, that the starch-grain consisted of a vesicular envelope insoluble in water, with soluble gummy contents, was overturned by the researches of Fritzsche and of Payen, who appeared to have demonstrated beyond all doubt that the starch-grain consisted of superimposed layers, formed of one and the same chemical compound throughout the whole thickness of the grain; but Nägeli believed, in his earlier researches at least, that he could discern an outer cellulose membrane,—which opinion was again questioned by myself. Muschke (Journ. f. Prakt. Chemie, lvi. p. 400) still more strongly asserted the presence of cellulose in the starch-grain, thinking he had found the latter to consist of a number of concentric membranes formed of cellulose, between which the starch-substance was deposited, and this in a double modification—one soluble in water, which formed the bright layers of the starch-grain, and one insoluble, of which the dark layers were composed. All these accounts, however, may now be regarded as out of date, since the recent researches of Nägeli ('Die Stärkekörner,' Monographie, 1858) prove indubitably that the whole starch-granule, in all its parts, is composed of two distinct chemical compounds, which in his view form a kind of diffusion †. He arrived at this conclusion

* Bot. Zeitung, July 1st & 8th, 1859; translated by A. Henfrey, F.R.S.

† A very long account of the structure and development of starch has just been published by Trécul in the 'Ann. des Sc. nat.' sér. 4. t. x. It does not contain any new matter of great importance: he advocates the view

XXXI.—*Centuries of North American Fungi.* By the Rev. M. J. Berkeley, M.A., F.L.S., and the Rev. M. A. Curtis, D.D.

[Continued from ser. 2. vol. xii. p. 435.]

**Agaricus* (Amanita) *cæsareus*, Schæff. South Carolina, H. W. Ravenel.

51. *A.* (Amanita) *Ravenelii*, B. & C. Pileo convexo areolato-verrucoso, verrucis pyramidatis; stipite brevi bulboso; volva crassa verrucosa sublobata; annulo deflexo. *Amanita bulbosa*, Rav. In woods, June, Car. Inf., H. W. Ravenel.

Pileus 4 inches across, convex, broken up into distinct areæ, each of which is raised into an acute rigid pyramidal wart; stem 3 inches high, 1 inch or more in thickness at the base, furnished with a thick warty volva and a deflexed ring.

A very fine species, allied to *A. strobiliformis*, Vitt.

52. *A.* (Lepiota) *subremotus*, B. & C. Pileo expanso obtuse umbonato toto verrucoso-squamoso, margine sulcato; stipite floccoso-farcto e bulbo æqualiter attenuato debili lævi; annulo amplo secedente; lamellis subangustis remotiusculis. Curt. no. 5067. On the ground amongst fir-leaves, New England, C. J. Sprague.

White. Pileus 4 inches across, expanded, obtusely umbonate, fleshy, except at the margin, which is in consequence sulcate, covered to the top of the umbo with raised wartlike scales; stem 5 inches high, clavato-bulbous at the base, attenuated upwards, $\frac{1}{3}$ inch thick in the centre, smooth, stuffed with floccose threads, rather delicate; ring uneven, broad; gills white, rather narrow, free, but not separated far from the stem.

This species is undoubtedly very near *A. mastoideus*; but the stem is not sunk into the umbo, as in that species, and in consequence the gills are not very remote.

53. *A.* (Tricholoma) *rhinarius*, B. & C. Pileo convexo, obtusissimo, centro subtiliter areolato-diffracto; margine squamuloso; stipite valido furfuraceo; lamellis ex albo flavis confertis emarginatis. Curt. no. 5745. In dense patches amongst dry leaves in woods, New England, C. J. Sprague.

Pileus 5 inches across, convex, very obtuse, yellowish white at the margin and minutely scaly, then ochraceous and yellow brown in the centre, where it is broken up into little brown scale-like areolæ; surface rimose; margin at first involute, then 3–4 inches high, 1 inch or more thick, solid, yellowish, furfuraceous from the curling up of minute portions of the cuticle; gills at first white, then yellow, crowded, adnate, emarginate, more or less forked.

Allied to *A. scalpturatus*.

54. *A.* (Clitocybe) *porphyrellus*, B. & C. Pileo convexo glabro

purpurascente; stipite solido sursum incrassato glabro albo-purpureo; lamellis rectis adnatis pallide purpureis. Curt. no. 5520. On the naked soil, Connecticut, C. Wright.

Pileus 1½ inch across, convex, smooth, of a pale dull purple; stem 1–1½ inch high, 1½ line thick, solid, smooth, incrassated upwards, purplish white; gills pale purple, margin straight. Spores elliptic, $\frac{1}{3730}$ inch long.

Differs from *A. laccatus* in the numerous gills and very different spores.

55. *A.* (Clitocybe) *glaucipes*, B. & C. Pileo convexo tenui rufulo pubescente, margine incurvo; stipite solido concolore glauco; lamellis adnatis distantibus rectis candidis. Curt. no. 5546. On the ground in woods, Connecticut, C. Wright.

Pileus 1 inch across, convex, thin, pubescent, pale rufous; margin incurved; stem 2 inches high, ¼ inch thick, solid, of the same colour as the pileus, with a white bloom; gills moderately distant, adnate, straight, white.

Allied to *A. laccatus*.

56. *A.* (Collybia) *præceps*, B. & C. Pileo e convexo umbilicato virgato rufo; stipite deorsum attenuato, pruinoso; lamellis albidis adnatis. Curt. no. 5758. New England, Aug. 1856, D. Murray.

Pileus 2–4 inches or more across, subcarnose, at first convex, then flat and depressed, undulated, russet-brown, darker in the centre, finely and regularly streaked; flesh white, soft; stem 3–4 inches high, about ¼ inch thick, strongly attenuated at the base, rather twisted, flexible, stringy with a loose pith; gills dirty white, thickish, somewhat ventricose, acutely adnate; edges at length uneven and the surface wrinkled, sometimes streaked with brown.

A flexible, top-heavy, flabby species, allied to *A. fusipes*.

57. *A.* (Collybia) *Spragueii*, B. & C. Albus, pileo umbonato carnoso sericeo-nitente stipiteque cavo glabris; lamellis angustis adnatis crispatis. Curt. no. 5757. On decayed stumps in shady woods, Sept. 1856, New England, Sprague.

White. Pileus 4–5 inches across, convex, strongly umbonate, fleshy, smooth, with a satiny lustre when dry; flesh very thick in the centre, not very compact; margin thin, slightly turned up; stem 4½–5 inches high, 1 inch thick, smooth, stringy, very hollow, splitting and bending with the weight of the pileus; gills narrow, obtusely adnate, crowded, crisped; edge minutely waved.

A moist heavy-topped species, allied to *A. maculatus*.

58. *A.* (Collybia) *stereocephalus*, B. & C. Pileo convexo, late umbonato firmo brunneo-albo; stipite farcto candido basi bulboso; lamellis albis adnatis utrinque rotundatis. Curt. no.

5744. On the ground amongst fir-leaves in wet woods, Sept. 1856, C. J. Sprague.

Pileus 2 inches across, convex, very broadly umbonate, fleshy, at length flat, smooth, brownish drab or white; flesh white, very firm and hard; stem 3 inches high, $\frac{1}{3}$ inch thick, bulbous at the base, stuffed with satiny fibres, externally fibroso-cartilaginous, twisted, flexuous, white; gills white, ventricose, moderately broad, obtuse in front, rounded behind and adnate, crowded.

Allied to *A. maculatus*.

59. *A.* (Collybia) *luteo-olivaceus*, B. & C. Parvus, luteo-olivaceus; pileo convexo-umbilicato glabro tenui; stipite leviter fistuloso, subtiliter furfuraceo flexuoso; lamellis adnatis. Curt. no. 5728. On old stumps in wet woods, Aug. 1856, C. J. Sprague.

Pileus $\frac{1}{2}$ an inch across, convex, slightly umbilicate, thin, smooth, opake when wet, shining when dry, olive-yellow; stem $1\frac{1}{2}$ inch long, 1 line thick, flexuous, minutely fistulose and scurfy, of a dirty ochre; gills crowded, adnate, of the same colour as the pileus, moderately broad. Spores white, subelliptic.

Evidently allied to *A. trochilus*.

60. *A.* (Collybia) *semihærens*, B. & C. Pileo convexo rufo glabro; stipite gracili solido fusco, sursum pallido pubescente; lamellis distantibus ex albido luteo-fuscis adnexis. Curt. no. 5523. On dead sticks amongst grass in woods, Connecticut, C. Wright.

Pileus $\frac{1}{6}$–$\frac{1}{4}$ inch across, convex, smooth, rufous, darker with age; stem 2 inches high, not a line thick, dark brown, pale and thicker above, clothed all over with short soft hairs; gills whitish, changing to pale yellowish brown, distant, adnexed, moderately broad; interstices veiny.

A very beautiful species.

61. *A.* (Mycena) *intertextus*, B. & C. Densissime cæspitosus; pileo hemisphærico, umbonato, demum expanso striato; stipitibus villo connatis, subfragilibus; lamellis distantibus, crassiusculis, adnatis. Curt. nos. 1741, 2557, 2558. On pine, South Carolina, M. A. Curtis.

Pileus 3–8 lines across, carnoso-membranaceous, convex, umbonate, then expanded, pellucid, fusco-cinereous, margin paler, striate; stems 2 inches high, $\frac{1}{2}$ a line thick, fistulose, smooth above and fuscous, pale below and joined intimately together by matted down; gills white, thick, adnate.

A very beautiful and singular species.

62. *A.* (Mycena) *connatipes*, B. & C. Dense cæspitosus; pileo hemisphærico alutaceo; stipitibus albis basi connatis; lamellis albido-flavis denti adnatis. Curt. no. 512. On the ground in dense clusters, Upper Carolina, M. A. Curtis.

Pileus 2–8 lines across, hemispherical, buff; stems 2 inches long, $1\frac{1}{2}$ line thick, white, confluent at the base and rooting; gills whitish yellow, adnate, subdecurrent.

Allied to *A. proliferus*, from which it differs in its hemispherical pileus, adnato-decurrent gills, &c.

63. *A.* (Omphalia) *xanthophyllus*, B. & C. Pileo depresso rubro-purpureo, floccoso, margine striato; stipite flavo-albo glabro subcompresso fistuloso deorsum attenuato subbulboso; lamellis flavis decurrentibus. Curt. no. 2871. On the sides of damp putrid logs, Aug., South Carolina, M. A. Curtis.

Pileus 2–3 inches across, depressed, floccose, red-purple; margin inflexed, somewhat striate; stem 3–4 inches long, $\frac{1}{4}$–$\frac{1}{3}$ inch thick, yellowish white, smooth, more or less compressed, fistulose, tapering downwards, but bulbous at the base; gills yellow, decurrent.

A very fine species, allied to *A. chrysophyllus*. There are two other new allied species, which, however, we cannot describe for want of sufficient materials.

63*. *A.* (Pleurotus) *pulvinatus*, P. Curt. no. 5396. On an apple tree, Nov., New England, C. J. Sprague.

Pileus $3\frac{1}{2}$ inches across, very excentric, pulvinate, wrinkled and irregularly tessellated, of a dirty reddish-yellow white; flesh firm, white, 1 inch thick; margin undulated, abruptly incurved; stem extremely short, thick, solid and fleshy; gills narrow, yellowish white, decurrent or much attenuated, rather distant.

As this appears to be the plant of Persoon, which is little known, we have given a description drawn up from Sprague's copious notes, which are accompanied by an excellent sketch. Smell like that of fresh potatoes, or somewhat acid and fruity, so strong as to scent the whole room.

64. *A.* (Pleurotus) *barbatulus*, B. & C. Pileo postice adnato hispidulo, margine inflexo glabro; lamellis distantibus tenuibus, interstitiis lævibus. Curt. no. 6390. On dead sticks, Boston, D. Murray.

Somewhat imbricated. Pileus $\frac{1}{2}$ an inch across, adnate behind, convex in front, rough, except towards the inflexed margin, with short downy hairs; stem none, gills distant, thin; edge sometimes slightly toothed; interstices even, pulverulent in the young plant.

Allied to *A. atrocæruleus*. When dry, it is of a pale ochre, but is probably pearly white when fresh. We have the same species from Cuba, attaining an inch or more in diameter.

65. *A.* (Pleurotus) *semicaptus*, B. & C. Pileo e resupinato breviter reflexo irregulari albido pulverulento; margine crenato; lamellis angustis distantibus integris concoloribus. Curt. no. 5362. On dead branches of birch, New England, C. J. Sprague.

Gregarious; pileus at first resupinate, then reflexed, about $\frac{1}{3}$ inch across, irregular, narrow, dirty white, pulverulent, with a little thin film extending on the matrix from the resupinate portion; margin waved or crenate; gills narrow, entire, distant, of the same colour as the pileus. Spores cymbiform, white, $\frac{1}{4000}$ inch long.

A very curious and distinct species. Occasionally the white film extends over the whole matrix.

66. *A.* (Pleurotus) *Blakeii*, B. & C. Pileo reniformi, conchato, rufo, glabro, postice puberulo; lamellis latis ventricosis tenuibus subconcoloribus, interstitiis venosis. Curt. no. 6289. On dead fir, Maine, Rev. J. Blake.

Pileus $\frac{1}{2}$ an inch across, reniform, conchate, quite smooth, of a deep red brown, obscurely downy behind; margin incurved; gills paler than the pileus, broad, ventricose, thin, distant; interstices veiny; stem none.

67. *A.* (Pleurotus) *candidissimus*, B. & C. Niveus; pileo reniformi, l. dimidiato, glabro, villo parco affixo, margine sulcato; lamellis distantibus, interstitiis lævibus. Curt. no. 6191. Maine, C. J. Sprague.

Pileus $\frac{1}{3}$ inch across, reniform or dimidiate, stemless, pure white, opake, smooth, like kid-leather; margin sulcate; gills white, slightly ventricose, attenuated behind, moderately broad, distant; interstices even.

A very beautiful and delicate species.

68. *A.* (Pleurotus) *racodium*, B. & C. Pileo griseo, conchato, atro-strigoso; lamellis griseis. Curt. no. 4058. On rotten wood, Pennsylvania, Dr. Michener.

Pileus $\frac{1}{4}$ inch across, conchiform, grey, clothed behind with dense black bristle-like hairs; margin striate; gills of the same colour as the pileus, moderately distant.

Closely allied to *A. applicatus*, but distinguished by the dense black hairs, which make it look, when dry, like a *Sphæria*.

69. *A.* (Volvaria) *emendatior*, B. & C. Pileo plano umbonato glabro; stipite sursum deorsumque incrassato, volva marginata; lamellis remotis. Curt. nos. 5074, 2546. On rich garden soil, New England, C. J. Sprague; Lower Carolina, M. A. Curtis.

Pileus 3 inches across, flat, with an obtuse umbo, smooth, white; margin thin, striate; stem 3 inches high, $\frac{1}{3}$ inch thick, slightly incrassated above and below, very slightly arachnoideo-fibrous, solid; volva forming merely a short rim; gills ventricose, remote, free and rounded behind, white, at length flesh-coloured, extending in front beyond the rugged margin of the pileus, as in *Montagnites*. Spores broadly cymbiform, $\frac{1}{2000}$ inch long. Smell disagreeable, but not strong. In the button state the pileus is areolate.

70. *A.* (Pluteus) *chrysophlebius*, B. & Rav. Pileo convexo flavo reticulato-rugoso; stipite gracili basi hirsuto sub-bulboso; lamellis latis remotis ex albo carneis. On putrid hickory logs, September, South Carolina, H. W. Ravenel.

Pileus $\frac{1}{2}$ an inch across, convex, yellow, with darker reticulated veins radiating from the centre; stem 1–2 inches high, not 1 line thick, enlarged above, slightly bulbous, white and hirsute at the base; gills broad, remote, white, then flesh-coloured.

An exquisite species, allied to *A. phlebophorus*, from which it differs in habit and in colour.

71. *A.* (Entoloma) *Murraii*, B. & C. Stramineus, pileo tenui striato glabro; stipite gracili; lamellis latis distantibus adnexis. Curt. no. 5800. In wet grounds, New England, D. Murray.

Straw-yellow. Pileus 1 inch across, convex, changing to a rich red brown when dry, regularly striate; margin crenulate; stem 2 inches high, 1 line thick; gills broad, distant, attenuated behind and adnexed; interstices veined. Spores irregular, $\frac{1}{2300}$ inch long.

An extremely pretty species.

72. *A.* (Clitopilus) *abortivus*, B. & C. Pileo e convexo plano, depresse-tomentoso griseo; stipite subæquali subtiliter floccoso albido; lamellis decurrentibus carneis. Curt. no. 5737. In damp wood, Sept., C. J. Sprague.

Pileus 2 inches or more across, at first convex, then plane, clothed with close felted pubescence of a clear light grey, smoother in age; flesh compact; margin incurved; stem 3 inches high, $\frac{1}{4}$ inch thick, minutely downy, especially below, often tufted and connate, nearly white, solid, with a loose shining pith; gills strongly decurrent, crowded, thin, pale flesh-coloured, becoming deeper in age. Spores irregular, not elongated and even, as in *A. prunulus*, $\frac{1}{3000}$ inch long. Often abortive, and then presenting subglobose umbilicate downy masses.

Closely allied to *A. popinalis*, which is also frequently abortive, but distinguished by its downy pileus and the gills not being grey. The stem also appears to be firmer.

73. *A.* (Clitopilus) *melilotus*, B. & C. Graveolens; pileo convexo centro depresso glabro; stipite subæquali striato, fibrilloso; lamellis latis decurrentibus. Curt. no. 5798. On the ground, New England, D. Murray.

Pileus 2 inches across, convex, depressed in the centre, smooth; margin incurved; stem $2\frac{1}{2}$ inches high, $\frac{1}{3}$ inch thick, striate, fibrillose; gills broad, thin, decurrent; spores irregular, $\frac{1}{3000}$ inch across.

This is evidently a very well-marked species, distinguished by its strong scent of melilot when dry. We are able at present

to characterize it very imperfectly, but it is too marked to be omitted entirely.

74. *A.* (Leptonia) *assularum*, B. & C. Pileo e campanulato explanato, umbonato glabro virgato albido; stipite fuligineo; lamellis ex albo carneis secedentibus. Curt. no. 2842. On rotten bits of wood in swamps, Sept., South Carolina, M. A. Curtis.

Pileus 1½ inch across, campanulate, then expanded, umbonate, smooth, virgate, whitish with the centre dark; margin striate; flesh thin, stem nearly 3 inches high, 1½ line thick, fuliginous, flexuous, nearly equal; gills white, at length flesh-coloured, subventricose. Spores irregular.

Evidently distinct from the other white-gilled *Leptoniæ* which grow on wood.

75. *A.* (Leptonia) *variicolor*, B. & C. Pileo umbilicato glabro pallide fusco; stipite farcto; lamellis postice abrupte attenuatis adnatis purpureo-albis. Curt. no. 5530. Amongst bushes in damp ground, Connecticut, C. Wright.

Pileus ½–1½ inch broad, umbilicate, smooth, pale brown; flesh thin; stem 2 inches high, 1½ line thick, greenish blue, smooth, stuffed with woolly fibres; gills broad, distant, somewhat ventricose, abruptly attenuated behind, and adnate, pale purplish white. Spores irregular, $\frac{1}{3000}$ inch in diameter.

Allied to *A. asprellus*.

76. *A.* (Nolanea) *quadratus*, B. & C. Pileo membranaceo conico demum reflexo aurantiaco-fusco; stipite fistuloso aurantiaco-luteo; lamellis carneo-aurantiacis latis ventricosis. Curt. no. 5735. Amongst wet mosses in pine swamps, New England, C. J. Sprague.

Pileus 1½ inch across, membranaceous, at first obtusely conical, then depressed, striate, of a clear orange or brown orange; stem 3 inches high, tender, fistulose to the very top of the pileus, orange-yellow; gills very broad, ventricose, almost triangular, at first adnexed, then decurrent as the pileus becomes depressed, of a beautiful incarnate orange; spores, when seen from above, quadrangular, $\frac{1}{1730}$ inch across, sometimes irregular.

One of the most splendid and singular species of the genus.

77. *A.* (Eccilia) *pyrinus*, B. & C. Graveolens; pileo umbilicato fusco; stipite compresso fistuloso; lamellis albidis. Curt. no. 5066. In swampy ground, New England, C. J. Sprague.

Pileus 1 inch across, at first broadly convex, then flat, umbilicate, dark brown in the centre, grey at the crenate edge; stem 1½ inch high, ⅛–¼ inch thick, hollow, at length compressed; gills whitish, slightly decurrent; spores irregular, angular. Odour like that of ripe pears.

78. *A.* (Naucoria) *siparioïdes*, B. & C. Pileo hemisphærico

flavo-fusco subtiliter squamulato-verrucoso; stipite fistuloso fibrilloso fusco, basi flavo-tomentoso; lamellis latis secedentibus distantibus. Curt. no. 5051. On the mud of an exsiccated swamp, New England, C. J. Sprague.

Pileus $\frac{1}{2}$–$\frac{3}{4}$ inch across, hemispherical, yellow-brown, minutely and thickly squamulato-verrucose; flesh thin, brittle; stem 1 inch high, not 1 line thick, fistulose, brown, fibrillose at the base, abruptly swollen, and covered with a dull pale-yellowish down; gills plane, distant, attached, but soon free, and with their edge denticulate; spores subelliptic, $\frac{1}{4000}$ inch long.

This is undoubtedly close to *A. siparius*, which sometimes grows in the same kind of locality; but in that species the spores are $\frac{1}{2300}$ inch long, not to mention other points.

79. *A.* (Naucoria) *pennsylvanicus*, B. & C. Pileo e conico umbilicato subcarnoso squamuloso; stipite fibrilloso-furfuraceo; lamellis latiusculis denticulatis adnexis subdistantibus. Curt. nos. 3954, 3956. Amongst fragments of wood, Pennsylvania, Dr. Michener.

Pileus about 1 inch broad, at first conical, obtuse, then expanded and umbilicate, tawny, clothed with minute, erect, sometimes wart-like scales; stem 1 inch high, 1 line thick, hollow, clothed with furfuraceous fibrils; gills rather broad, distant, brown, edged with white denticulations; spores subelliptic, $\frac{1}{2750}$–$\frac{1}{3000}$ inch long.

The spores are much smaller than in *A. conspersus*, with which it agrees in many respects.

80. *A.* (Crepidotus) *malachius*, B. & C. Sparsus; pileo cuneiformi subflabellato albo molli; stipite brevissimo, albo tomentoso; lamellis ventricosis confertis ex albo flavidis. Curt. no. 5730. On the sides of old stumps in wet woods, New England, Aug., C. J. Sprague.

Gregarious, but scattered, horizontal; pileus 1–2 inches across, smooth, white, cuneiform, subflabellate; flesh rather thick behind, very thin in front; stem 1–2 lines long, white, tomentose; gills at first white, then yellow-brown, ventricose, obtuse behind, thin, crowded. Spores nearly globose, $\frac{1}{4300}$ inch in diameter.

This species resembles *A. nephrodes* in the kid-like pileus, but the gills and spores are very different.

81. *A.* (Crepidotus) *pecten*, B. & C. Pusillus; pileo pectiniformi crenato-sulcato tomentoso e resupinato reflexo; lamellis latiusculis umbrinis. Curt. no. 4991. On dead branches, Upper Carolina, M. A. Curtis.

Pileus 2 lines across, ochraceous, flabellate, strongly sulcate and crenate, tomentose, attached by a little white down; stem none; gills moderately broad, umber; margin fringed with

minute clavate hairs; spores subelliptic, pale ochre, $\frac{1}{3000}$–$\frac{1}{3500}$ inch long.

Looks at first like a minute *Schizophyllum*.

82. *A.* (Crepidotus) *putrigena*, B. & C. Imbricatus; pileo subreniformi, albido tomentoso; margine striato; lamellis ex albido ferrugineis. Curt. no. 2566. On damp rotten logs, Dec., Santee Canal, South Carolina, H. W. Ravenel.

Densely imbricated; pileus $\frac{1}{2}$–$\frac{3}{4}$ inch or more across, subreniform, dirty white, tomentose, clothed with thicker white down at the point of attachment; margin slightly striate; stem none; gills broad, at first dirty white, then ferruginous from the spores; spores nearly globose, $\frac{1}{3500}$ inch in diameter.

This is at once distinguished, without other marks, by the subglobose spores resembling those of *A. malachius* and *nephrodes*.

If this is the same as an Agaric sent me by Mr. Ravenel, which agrees in the spores, it attains much larger dimensions.

83. *Coprinus Spragueii*, B. & C. Tenerrimus; pileo e campanulato conico tomentoso plicato; stipite fistuloso pallide cinnamomeo; lamellis paucis angustis. Curt. no. 5303. In wet springy ground, New England, C. J. Sprague.

Pileus $\frac{3}{4}$ inch across, at first campanulate, then conical, pale brown, darker in the centre, downy, plicate, interstices pale; stem 2 inches high, 1 line thick, pale cinnamon, fistulose; gills few, narrow, tender, brown; spores subcymbiform, $\frac{1}{2500}$ inch long.

This is clearly different from *C. plicatilis*; and the difference is confirmed by the spores being narrower and smaller. The same species, apparently, occurs in Pennsylvania and Upper Carolina (4289 & 485).

84. *C. Wrightii*, B. & C. Pileo ex ovali plano striato glauco furfuraceo; stipite fistuloso glabro; lamellis liberis cinereis. Curt. no. 5534. On little bits of grass, &c., in flower-pots, Connecticut, C. Wright.

Pileus $\frac{1}{4}$–$\frac{1}{2}$ inch broad, at first oval, then flat and expanded, radiato-striate, of a glaucous grey, with small brown chaffy specks; stem 2 inches high, not $\frac{1}{2}$ a line thick, whitish, smooth, pellucid, fistulose, attached by a little down at the base; gills moderately distant, narrow, free, dark grey; spores subcymbiform, $\frac{1}{2500}$ inch long.

A minute but distinct species.

85. *Hygrophorus cærulescens*, B. & C. Pileo plano subumbonato viscido cæruleo-alutaceo; stipite glabro pallide cæruleo; lamellis distantibus crassis decurrentibus pileo obscurioribus. Curt. no. 5434. In woods, amongst dead leaves and sticks, which adhere to it, New England, C. J. Sprague.

Pileus 2 inches across, nearly flat, thick and obtuse in the centre, viscid when moist, shining with a satiny lustre when dry, of a delicate blue-drab; stem $2\frac{1}{2}$ inches high, $\frac{1}{3}$ inch thick, attenuated downwards, smooth, pale blue, at first firm, then soft and hollow; gills few, rather thick and fleshy, decurrent, darker than the pileus; interstices corrugated.

A very beautiful species.

86. *H. aurantiaco-luteus*, B. & C. Pusillus, aurantiacus; pileo e convexo subumbilicato striato glabro; stipite gracili; lamellis arcuatis decurrentibus. Curt. no. 5571. Amongst moss (*Dicranum*), Connecticut, C. Wright.

Gregarious, deep orange. Pileus $\frac{1}{4}$ inch across, at first convex, then flat or somewhat depressed, smooth, striate; stem $1\frac{1}{2}$ inch high, not 1 line thick, attenuated downwards, smooth; gills arched, strongly decurrent.

This species has precisely the habit of *Agaricus fibula*.

87. *Lactarius hygrophoroides*, B. & C. Pusillus; pileo sicco pulverulento stipiteque brevi flavo-rubris; lamellis decurrentibus, distantibus, luteis; interstitiis rugosis. Curt. no. 6194. On the ground, Aug., Maine, C. J. Sprague.

Pileus $1\frac{1}{2}$ inch across, convex, at length plane, pulverulent, yellowish red; stem not 1 inch high, $\frac{1}{3}$ inch thick, of the same colour as the pileus; gills very distant, decurrent, yellowish; interstices rugose.

This species has somewhat the habit of *L. volemum*.

**L. calceolus*, B. Two forms of this curious species occur in New England, a larger and a smaller.

88. *L. subtomentosus*, B. & Rav. Pileo subtomentoso compacto stipiteque cavo basi albo-umbrinis; lamellis latis distantibus decurrentibus albidis; lacte ex albo flavescente acrido. On the ground in swamps, South Carolina, Sept., H. W. Ravenel.

Pileus 2–3 inches across, convex, umber-brown, dry, subtomentose, firm; stem 1 inch high, $\frac{1}{2}$ inch thick, of the same colour as the pileus, except at the base, where it is white, hollow; gills distant, broad, decurrent; milk-white, becoming yellowish, acrid.

Allied to *Lactarius fuliginosus*.

89. *Cantharellus princeps*, B. & C. Maximus, aurantiacus; pileo infundibuliformi-rugoso, stipite deorsum attenuato; plicis reticulatis. Curt. no. 6196. Maine, C. J. Sprague.

Orange. Pileus 5 inches or more across, deeply infundibuliform, rugose; stem $5\frac{1}{2}$ inches high, 1 inch thick, attenuated downwards; folds forming an open network.

This is the largest of the genus, and most distinct. Unfortunately we cannot give a more perfect description, as we have no notes.

90. *C. Petersii*, B. & C. Pusillus; pileo depresso subzonato stipiteque gracili dealbatis; plicis distantibus decurrentibus; interstitiis venosis. Curt. no. 6077. Amongst moss at the base of trees, Alabama, Hon. J. M. Peters.

Pileus 1 inch across, depressed, white, opake, with one or two concentric furrows; stem 1 inch high, 1 line thick, white like the pileus; folds moderately broad, distant, decurrent; interstices wrinkled.

Resembling somewhat the white variety of *C. aurantiacus*, but a smaller plant, with broader folds.

91. *C. lignatilis*, B. & C. Rufus; pileo tenui infundibuliformi striato glabro; stipite subæquali plicis tenuibus decurrentibus. Curt. no. 1979. On rotten logs, South Carolina, H. W. Ravenel.

Reddish brown; pileus 2 inches across, smooth, infundibuliform, deeply striate; stem 2 inches or more high, $\frac{1}{4}$–$\frac{1}{3}$ inch thick, smooth; folds thin, decurrent.

Of this we have no notes; but the peculiar habitat and characters will distinguish it.

92. *C. Wrightii*, B. & C. Pileo plano demum depresso, pallide rubro; stipite solido striato rufescente sursum incrassato; plicis demum decurrentibus glauco-rubris; interstitiis venosis. Curt. no. 5559. On the ground in the shade of trees, Connecticut, C. Wright.

Pileus $\frac{1}{2}$–$1\frac{1}{2}$ inch across, plane, at length depressed, dull red, edge irregularly deflexed; stem $1\frac{1}{2}$ inch high, 2 lines thick, solid, striate, somewhat fibrous, brownish red, incrassated upwards; folds at first free, at length decurrent, waved, of a pale glaucous red; interstices veined; spores fusiform, with the endochrome retracted to either extremity, $\frac{1}{2250}$ inch long.

Analogous to *Agaricus laccatus*.

93. *Marasmius velutipes*, B. & C. Pileo umbilicato tenui striato ochraceo-fusco, l. fusco; stipite striato velutino pallido, l. basi ferrugineo; lamellis angustis confertis adnexis. Curt. no. 2548. On leaves in dried swamps, Aug., M. A. Curtis.

Pileus $\frac{1}{2}$–$\frac{3}{4}$ inch across, ochraceous, brown or dark brown, thin, dry, striate, umbilicate: stem $1\frac{1}{2}$–2 inches high, 1 line thick, straight, clothed with pale velvety down, sometimes a little tawny below, hollow; gills narrow, crowded, pale, slightly adnate.

Differing materially from *M. archyropus* in the nature of the clothing of the stem, and from *M. spongiosus* in the more crowded narrow gills and umbilicate pileus.

94. *M. Olneii*, B. & C. Pileo convexo glabro rufescente striato; stipite albo subtiliter pulverulento-tomentoso insititio; lamellis liberis collariatis albis. Curt. no. 1821. On dead twigs, Rhode Island, Olney.

Pileus $\frac{1}{3}$ inch across, convex, smooth, striate, pale rufous; stem $1\frac{1}{2}$ inch high, not a line thick, white, minutely pulverulent-tomentose, especially below; gills white, distant, minutely toothed, free, forming by their junction a little collar round the top of the stem.

95. *M. viticola*, B. & C. Pileo depresso subcoriaceo tenui sulcato striato rufo; stipite brevi insititio fusco pruinoso, furfuraceo; lamellis pallidis distantibus; interstitiis lævibus. Curt. no. 4604. On dead vine branches, Alabama, Hon. J. M. Peters.

Pileus $\frac{3}{4}$ of an inch broad, dry, subcoriaceous, depressed, sulcato-striate, pale rufous; stem 1 inch high, dark brown, pulverulent; gills distant, pale, slightly adnate, moderately broad, ventricose; interstices even.

The stems are sometimes confluent.

96. *M. pruinatus*, B. & C. Pileo campanulato sulcato pruinato rugoso; stipite setiformi nitido cinereo; lamellis paucis, interstitiis lævibus. Curt. no. 5064. On little bits of grass, &c., New England, C. J. Sprague.

Pileus $\frac{1}{2}$ an inch across, campanulate, pale umber, pruinose, minutely wrinkled; stem 2 inches high, setiform, pale cinereous or tinged with reddish brown, shining with a satiny lustre; gills ochraceous, few, distant, interstices even. A thin white mycelium like a corticium spreads over the matrix.

97. *Heliomyces decolorans*, B. & C. Albus, exsiccatione rufus; pileo glabro rugoso sulcato; stipite rigido nitido; lamellis latis decurrentibus. Curt. no. 6079. On dead wood, Alabama, Hon. J. M. Peters.

Pileus 1 inch or more across, white at first as well as the gills, but changing in drying to a deep tawny brown, smooth, wrinkled, sulcate; stem 2 inches high, shining, more permanent in colour, but sometimes becoming rufous; gills broad, distant, decurrent; interstices wrinkled.

The change of colour is exactly that which takes place in *Hygrophorus eburneus*.

98. *Paxillus rudis*, B. & C. Pileo subcuneiformi sordide flavido tomentoso, margine inflexo; stipite nullo; lamellis crassiusculis obtusis postice costatis. Curt. no. 5521. On pine timber of a railroad embankment, growing horizontally in the crevices between the timbers, Connecticut, C. Wright.

Pileus 2 inches or more across, tomentose, dirty yellow brown, wedge-shaped when growing freely, but often attached behind with a narrow reflected margin, which is strongly incurved; stem none; gills rather thick, obtuse, costate behind, ferruginous, not reticulate; spores dirty yellow, subelliptic, with a large globose nucleus and hyaline gelatinous coat, $\frac{1}{4000}$ inch long.

Undoubtedly allied to *Paxillus panuoides*, but at once distinguished by the peculiar spores.

99. *Panus strigosus*, B. & C. Maximus; pileo excentrico depresso stipiteque valido strigosis; lamellis latis distantibus decurrentibus. Curt. nos. 6197, 5170. On oak stumps, New England, C. J. Sprague; Pennsylvania, Dr. Michener.

White; pileus 8 inches across, excentric, clothed with coarse strigose pubescence; margin thin; stem 2–3 inches high, 1 inch or more thick, strigose like the pileus; gills broad, distant, decurrent.

Allied to *Panus levis*.

100. *Panus operculatus*, B. & C. Fasciculato-erumpens; pileo cupulæformi apice affixo rufo furfuraceo-villoso glabrescente; lamellis angustis tenuibus primum velo operculatis. Curt. no. 5697. On bark, New England, D. Murray.

Fasciculate, erumpent; pileus cup-shaped, $\frac{1}{2}$ an inch or more across, fixed by the apex, rufous, clothed with scurfy pubescence, which at length vanishes; gills narrow, of the same colour as the pileus, at first covered by a tympanoid veil.

Allied to *P. Delastrii*, Mont.

XXXII.—*Notice of a new Antelope* (Kobus) *from Central Africa.*

By John Edward Gray, F.R.S.

The British Museum has lately received, through Mr. Samuel Stevens, a number of heads and horns of Antelopes, &c., from Awan Bahr il Gazal (lat. 6° 70′ N.), in Central Africa, which have been brought to England by Mr. Petherick, who has been in the country collecting ivory, &c. I will first give a list of the animals brought, to show their geographical range, and then proceed to give a short notice of the new species.

1. *Bos Taurus*, Gray, Cat. of Ungulata in Coll. B. M. p. 17. Variety with the horns elongate and subspiral. Nader-Sobat, lat. 11° N.

2. *Bubalus Caffer*, Gray, Cat. p. 28. Horns.

3. *Adenota Lechèe*, Gray, Cat. p. 98. Male skin, in a bad state; skull of half-grown male and female. Awan and Raik.

4. *Kobus Maria*, n. s. Two heads, male and female. Awan.

5. *Kobus ellipsiprymnus*, p. 99. Head of male and female. Raik.

6. *Alcelaphus Bubalis*, p. 123. Several heads, of both sexes. Djour.

7. *Damalis Senegalensis*, p. 126. Head of male and females. Azack.

8. *Tragelaphus sylvatica*, p. 139. Head of male.